

1056/236

SEQUENCE LISTING

SEQ ID NO: 1

MVLLYSQASWDKRSKADALVLPFWMKNSKAQEAAVVDDEDYKLVYQNALSNFSGKKKG
 ETAFLFGNDHTKEQKIVLLGLGKSEEVSGTTVLEAYAQAATTVLRKAKCKTVNILLPTISQ
 LRFSVEEFLTNLAAGVLSLNYNYPTYHKVDTSLPFLEKVTVMGIVSKVGDKIFRKEESLF
 EGVYLTRDLVNTNADEVTPKLA AVAKDLAGEFASLDVKILDRKAILKEKMGLLA AVA
 KGA AVEPRFVLDYQGKPKSKDRTVLIGKGVTFDSGGLDLKPGKAMITMKEDMAGAAT
 VLGIFASALASLELPINVTGIIPATENAIGSAAYKMGDVYVGMTGLSVEIGSTDAEGRLLA
 DAISYALKYCNPTRIIDFATLTGAMVVSLGESVAGFFANNDVLARDLAEASSETGEALW
 RMPLVEKYDQALHSDIADMKNIGSNRAGSITAALFLQRFLDNPVAWAHLDIAGTAYHE
 KEELPYPKYATGFGVVRCLHYMEKFLSK

SEQ ID NO: 2

MTASGGAGGLGSTQTVDVARAQAAAATQDAQEVIGSQEASEASMLKGCEDLINPAAAT
 RIKKKGEKFESLEARRKPTADKAEEKSESTEKGDTPLEDRTEDLSEVSGEDFRGLKNS
 FDDSSPDEILDALTSKPSDPTIKDLALDYLIQTAPSDGKLKSTLIQAKHQLMSONPQAI
 VGGRNVLASETEASRANTSPSSLSLYEQVTSSEPSNCANLHQMLASYLPSEKTAVMEELV
 NGMVADLKSEGPSIPPAKLQVYMTLSNLQALHSVNSFFDRNIGNLENSLKHEGHAPIPS
 LTTGNLTKTFLQLVEDKFPSSSKAQKALNELVGPDTGPQTEVLNLFALNGCSPRIFSGA
 EKKQQLASVITNTLDADNADNEDYPKPGDFPRSSFSSTPPHAPVPQSEIPTSTSTQPPSP

SEQ ID NO: 3

MCIKRKTWIAFLAVVCSFCLTGCLKEGGDSNSEKFIVGTNATYPPFEFVDKRGVVGFD
 IDLAREISNKLGLTLDVREFSFDALILNLKQHRIDAVITGMSITPSRLKEILMIPYYGEEIKH
 LVLVFKGENKHPLPLTQYRSVAVQTGTYYEAYLQSLSEVHIRSFDSTLEVLMEVMHGKS
 PVAVLEPSIAQVVLKDFPALSTATIDLPEDQWVLGYGIGVASDRPALALKIEAAVQEIIRKE
 GVLAELEQKWGLNN

SEQ ID NO: 4

MSEKRKSNKIIGIDLTGTTNSCVSVMEGGQPKVIASSEGTRTTPSIVAFKGGETLVGIPAKR
 QAVTNPEKTLASTKRFIGRKPFSEVESEIKTVPYKVAPNSKGDAVFDVEQKLYTPEEIGAQI
 LMKMKETA EAYLGETVTEAVITVPA YFNDSQRASTKDAGRIAGLDVKRIPEPTAAALA
 YGIDKEGDKKIAVFDLGGGTDFDISILEIGDGVFEVLSTNGDTHLGGDDFDGVIINWMLDEF
 KKQEGIDLSKDNMALQRLKDAAEKAKIELSGVSSTEINQPFITIDANGPKHLALTTLTRAQF
 EHLASSLIERTKQPCAQALKDAKLSASDIDDVLLVGGMSRMPAVQAVVKEIFGKEPNKG
 VNPDEVVAIGAAIQGGVVGGEVKDVLLLDVIPLSLGIETLGGVMTPLVERNTTIPTQKKQI
 FSTAADNQPAVTIVVLQGERPMAKDNKEIGRFDLTDIPPAPRGHPQIEVTFDIDANGILHV
 SAKDAASGREQKIRIEASSGLKEDEIQQMIRDAELHKEEDKQORKEASDVKNEADGMIFRA
 EKAVKDYHDKIPAELVKEIBEHIEKVRQAikedASTTAIKAASDELSTHMQKIGeamQAQ
 SASAAASSAANAQGGPNINSEDLKKHSFSTRPPAGGSASSTDNIEDADVEIVDKPE

SEQ ID NO: 5

MHDALQSILAIQELDIKMIRLMRVKKEHQNELAKIQALKTDIRRKVEEKEQEMEKLKDQI
 KGGEKRIQEISDQINKLENQQA AVKKMDEFNALTQEMTAANKERRTLEHQLSDLMDKQ
 AGSEDLISLKESLSSTENSSSAIEEEIRENIRKINEEGRSLLSQRTOQLKETTDPELFSIYERL
 LNNKKDRVVVPIENRVCSGCHIALTPQHENLVRKQDHLVFCEHCSRILYWQELQSPSAE
 GATTKRRRRRTAV

SEQ ID NO: 6

MKKFLLLSLMSLSSLPTFAANSTGTIGIVNLRRCLEESALGKKESAEEFKMKNQFSNSMG
KMEEELSSYISKLQDDDYMEGLSETAAAE LRKKFEDLSAEYNTAQGGYYQILNQSNLKR
MQKIMEEVKKASETVRIQEGLSVLLNEDIVLSIDSSADKTD AVIKVLDDSFQNN

SEQ ID NO: 7

MTTESLETLVEQLSGLTVLELSQLKKLLEEKWDVTAAAPVVAVAGAAAAGDAPASAE
TEFAVILEDVPSDKKIGVLKVVREVTGLALKEAKEMTEGLPKTVKEKTSKSDAEDTVKK
LQEAGAKAVAKGL

SEQ ID NO: 8

MKKTALLAALCSVVSLSSCCRIVDCCFEDPCAPIQCSPCESKKKDV DGGCNSCNGYVPA
CKPCGGDTHQDAKHGPQARGIPVDGKCRQ

SEQ ID NO: 9

MPKIDTCDSCVSNTELLAIRTRVTQSYNEAQ TILSSIPDGIFLLSESGEILICNPQARAILGIP
EDIQLVTRMFHDFFPD TFFGFSVQEALKEVPPKTIRLTL SQELSQKEVEVFVRKNISHDFL
FLLIRDRSDYRQLEQAIEKYRSISELGKIAATLAHEIRNPLTSISGFATLLKEELSSERHORM
LNVIEGTRSLNSLYSSMLEYTKIQPLNLRSIDLODFESSLIPELSLTPSCFERRTILSPIQRSI
DPDRRLRCVIWNLVKNAVEASDEEIFLELHEKGFSVINTGTLPPNIQEKLFIPFFTTK PQGNG
LGLAEAHKIMRLHGGDLVVSTQDNRTTFTILWTPA

SEQ ID NO: 10

MKVILRALCLFLVLP CGCYARVPSFEPFRGAIAPNRYTPKHSPELYFEMGDKYFQAKKFK
QALLCFGMITHHFPEHALHPKAQFLVGLCYLEMGHPDLADKALTQYQELADTEYSEQLF
AIKYSIAQSFANGKRKNIVPLEGF PKLLKADTDALRIFEEIVTASSDADLKASALYAKGAL
LFDRKEYSEAIKTLKKVSLQFP SHLSPESTLIAKIHCLQALQEPYNEQYLQDARMNAAA
LRKQHPNHPSPNTEVENYIHHMCEAYASCLYSTGRFYEKKRKASSAKIYYSIALENFPDTS
YVAKCNKRRLERLSKQMS

SEQ ID NO: 11

MFDVVISDIEAREILDSRGYPTLCVKVITNTGTGFEACVPSGASTGIKEALELRDKDPKRY
QGKGVLQAISNVEKVLMPALQGF SVFDQITADAIMIDADGTPNKEKLGANAILGVSLAL
AKAAANTLQRPLYRYLGGSF SHVLP CPM MNLNGGMHATNGLQFQEFMIRPISAPSLTE
AVRMGAEVFNALKKILQNRQLATGVGDEGGFAPNLASNAEALDLLLTAIETAGFTPRED
ISLALDCAASSFYNTQDKTYDGKSYADQVGILAE LCEHYPIDSIDGLAEEDFEGWKLLS
ETLGD RVQLVGDDL FVTNSALIAEGIAQGLANAVLIKPNQIGTLTETAEAIRLATIQGYAT
ILSHRGETEDTTIADLAVAFNTGQIKTGSLSRSERIAKYNRLMAIEBBMGPEALFQDSNPFSKA

SEQ ID NO: 12

MMKRLLCVLLSTSVFSSPMLGYSASKKDSKADICLAVSSGDQEV SQEDLLKEVSRGF SR
VAAKATPGVVYIENFPKTGNQAIASPGNKRGFQENPFDYFNDEFFNRRFFGLPSHREQQRP
QQRDAVRGTGFIVSEDGYVVTNHHVVEDAGKIHVTLHDGQKYTAKIVGLDPKTDLAVI
KIQAEKLPFLTFGNSDQLQIGDWAIAIGNPFGLQATVTVGVISAKGRNQLHIVDFEDFIQT
DAAINPGNSGGPLLNINGQVIGVNTAIVSGSGGYIGIGFAIPSLMAKRVIDQLISDGQVTRG
FLGVTLPIDSELATCYKLEK VYGALVTDVVKGSPA EKAGLRQEDVIVA YNGKEVESLS
ALRNAISLMMPGTRVVLKIVREGKTIEIPVTVTQIPTEDGV SALQKMGVRVQNITPEICKK
LGLAADTRGILVVAVEAGSPAASAGVAPGQLILAVNRQRVASVEELNQVLKNSKGENVL
LMVSQGDVVRFIVLKSDE

SEQ ID NO: 13

MKKINKIVLAVGGTGGHIIPALAAARETFIHEDIEVLLLKGKGLAHFLGDDSEVAYCDIPSGS
 PFSLRVNRMFSGAKQLYKGYVAALQKIRDFTPDLAIGFGSYHSLPAMLASIRSRIPLFLHE
 QNIVPGKVNKLFSRFAKGVGMSFAAAGEHFHCRAEVFLPIRKLSEQIVFPGASPVICVV
 GGSQGAAILNDVVPKALARIESYSNLYVHHIVGPKGDLQAVSQVYQDAGINHTVTAFD
 HNMLGVLAQSDLVISRSGATMLNELLWVQVPAILIPYPGAYGHQEVNAKFFHTHTVGGGT
 MILQKYLTEESLSKQVLLALDPATSENRRKAMLSAQKKSFKSLYQFICESL

SEQ ID NO: 14

MGNSGFYLNTQNCVFADNIKVGQMTEPLKDQQILGTTSTPVAAKMTASDGISLTVSN
 NPSTNASITIGLDAEKAYQLILEKLGDQILGGIADTIVDSTVQDILDKITDPSLGLLKAFN
 NFPITNKIQCNGLFTPRNIETLLGGTEIGKFTVTPKSSGSMFLVSADIIASRMEGGVVLAIV
 REGDSKPYAISYGYSSGVPNLCSLRTRINTGLTPTTYSRLRVGGLESQVWVNALSNGNDI
 LGITNTSNVSFLEVIPQTNA

SEQ ID NO: 15 (pmpA)(CT412)

MNRVIEIHAHYDQRQLSQSPNTNFLVHHPYLTLPKFLGALIVYAPYSFAEMELAISGHK
 QGKDRDTFTMISSCPEGNTYIINRKLILSDFSLLNKVSSGGAFRNLAGKISFLGKNSSASIH
~~FKHININGEGAGVFESESSIEFTDLRKLVAEGSESTGGIETAKEDISEKNNHHIAERNNTKGN~~
 GGVIQLQGDMKGSVSFVDQRGAIHFTNNQAVTSSSMKHSRGGGAGISGDFAGSRILFLNNQ
 QITFEGNSAVHGGAIYNKNGLVEFLGNAGPLAFKENTTIANGGAIYTSNFKANQQTSPILF
 SQNHANKKGGAIYAQYVNLEQNQDTIRFEKNTAKEGGGAISSQCSITAHNTIIFSDNAA
 GDLGGGAILLEGKKPSLTIAHSGNIAFSGNTMLHITKKASLDRHNSILIKEAPYKIQLA
 NKNHSIHFFDPVMALSASSSPIQINAPEYETPFSPKGMIVFSGANLLDDAREDVANRTSIF
 NQPVHLYNGTLSIENGHLIVQSFKQTGGRISSPGSSALYTMNSFFHGNISSKEPLEING
 LSFQVDISPSNLQAEIRAGNAPRLRLSGSPSIHDPEGLFYENRDTAASPYQMEILLTSDKIVDI
 SKFTTDSLVTNKQSGFQGAWHFSWQPNITNTKQKILRASWLPTGEYVLESNRVGRAVP
 NSLWSTFLLQTASHNLGDHLCNNRSLIPTSIFYGVLLGGTGAEMSTHSSEESFISRLGAT
 GTSIURLTPSLTSLSGGSHMFGDSFVADLPEHITSEGIVQNVGLTHVWGPLTVNSTLCAAL
 DHNAMVIRCSKKDHTYKWDTFGMRGTLGASYTFLEYDQTMRVFSFANIEATNILQRA
 FTETGYNPRSFSKTKLLNIAPIGIGYEFCLGNSSFALLGKGSIGYSRDIKRENPTLAHLAM
 NDFAWTTNGCSVPTSAHTLANQLILRYKACSLYTAYTINREGKNLSNSLSCGGYVGF

SEQ ID NO: 16 (pmpB)(CT413)

MKWLSATAVFAAVLPSVSGFCFPEPKELNFSRVGTSSSTTFTETVGEAGAEYIVSGNASF
 TKFTNIPTDTTTTPTNSNSSSSNGETASVSESDSDSTTTTPDPKGGGAFYNAHSGVLSFMTR
 SGTEGSLTLSEIKITGEGGAIFSQGELLFTDLTGLTIQNNLSQLSGGAIFGESTISLSGITKAT
 FSSNSAEVPAPVKKPTEPKAQTASETSGSSSSSNGDSVSSPSSRAEPAAANLQSHFICATA
 TPAAQTDTESTPSHKGPGSGGAIYAKGDLTIADSQEVLFSSINKATKDGGAIKFAEKDVSFEN
 ITSLKVQTNGAEEKGGAIYAKGDLTIADSQEVLFSSINKATKDGGAIKFAEKDVSFEN
 IKYNKAGTFETKKITLPAQASAGNADAWASSSPQSGSGATTVSNSGDSGSDSDTSET
 VPATAKGGGLYTDKNLSITNITGHEIANNKATDVGGGAYVKGTLTCENSHRLQFLKNSS
 DKQGGGIYGEDNITLSNLTGKTLFQENTAKEEGGGLFIKGTDKALMTGLDSFCLINNTS
 EKHGGGAFVTKEISQTYTSDVETIPGITPVHGETVITGNKSTCGNGGGVCTKRLALSNIQ
 SISISGNSAAENGGAHTCPDSFPTADTAEQPAASAAATSTPESAPVVSTALSTPSSSTVSS
 LTLAASSQASPATSNKETQDPNADTDLLIDYVVDTTISKNTAKKGGGIYAKKAKMSRID
 QLNISENSATEIGGGICCKESLELDALVSLSVTENLVGKEGGGLHAKTVNISNLKSGFSFS
 NNKANSSSTGVATTASAPAAAAASLQAAAAAVPSSPATPTYSGVVGGAIYGEKVTFSSQC
 SGTCQFSGNAIDNNPSQSSLNVQGGAIYAKTSLSIGSSDAGTSYIFSGNSVSTGKSQTTG
 QIAGGAIYSPTVTLNCPATFSNNTASMATPKTSSSEDGSSGNSIKDTIGGAIAGTAITLSGVS
 RPSGNTADLGAAGTLANANTPSATSGSQNSITEKITLENGSIFFERNQANKRGAIYSPSVS
 IKGNNTITFNQNTSTHDGSAIYFTKDATIESLGSVLFTGNNVTATQASSATSGQNTNTANY

GAAIFGDPGTTQSSQTDAILTLLASSGNITFSNNSLQNNQGDTPASKFCSIAGYVKLSLQA
 AKGKTISFFDCVHTSTKKIGSTQNVYETLDINKEENSNPYTGTVFSSELHENKSYIPQNAI
 LHNGTLVLKEKTELHVVSFEQKEGSKLIMKPGAVLSNQNIANGALVINGLTIDLSSMGTP
 QAGEIFSPELRIVATTSSASGGSGVSSSIPTNPKRISAAAPSGSAATTPTMSENKVF LTGDL
 TLIDPNGNFYQNPMLGSDLDVPLIKLPTNTSDVQVYDLTSLGDLFPQKGYMGWTWLTDSN
 PQTGKLQARWTFD TYRRWVYIPRDNH FYANSILGSQNSMIVVKQGLINNMLNNA RFDDI
 AYN NFVWSGVGTFLAQQTPLSEEF SYYSRGTSVAIDAKPRQDFILGA AF SKMVGKTKA
 IKKMHN YFHKGSEYSYQASVYGGKFLYFLNKQHG WALPFLIQGVVSYGHKHDTTTL Y
 PSHERNKGDWEDLGWLADLRISMDLKEPSKDSSKRITVYGELEYSSIRQKQFTEDYDPR
 HFDDCAYRNLSPVGCAVEGAIMNCNILMYNKLALAYMPSIYRNNPVCKYRVLSSNEA
 GQVICGVPTRTSARA EYSTQLYLGPFWTLYGNYTIDVGM YTLSQMTSCGARMIF

SEQ ID NO: 17 (pmpC)(CT414)

MKFMSATAVFAAALSSVTEASSIQDQIKNTDCNVSKLGYSTSQAFTDMMLADNTEYRA
 ADSVSPYDFSTSSRLPRKHLSSSSEASPTEGVSSSSGETDEKTEEELDNGGIYAREKLT
 SESQDLSLNQSIELHDNSIFFGEGEVIFDHRVALKNGGAIYGEKEVVFENIKSLLVEVNIAV
 EKGGSVYAKERVSLENVTEATFSSNGGEQGGGGIYSEQDMLISDCNNVHFQGNAA GAT
 AVKQCLDEEMIVLLAECVDSLSEDTL DSTPETEQTESNGNODGSSETEDTQVSESESTPS
 PDDVLGKGGGIYTEKSLTITGITGTD FVSNIATDSGAGVFTKENLSCTNTNSLQFLKNSA
 GQHGGGAYVTQTMSVTNTTSESITTPPLIGEVI FSENTAKGHGGGICTNKLSLSNLKTVTL
 TKNSAKESGGAIFTDLASIPITDTPESSTPSSSPASTPEVVASAKINRFFASTAKPAAPSLTE
 AESDQTDQTETSDTNSDIDVSIENILNVAINQNTSAKKGGAIYGKKAKLSRINNLELSGNS
 SQDVGGGLCLTESVEFDAIGSLLSHYNSAAKEGGAIHSKTVTLNLKSTFTFADNTVKAI
 VESTPEAPEEIPPVEGEESTATEDPNSNTEGSSANTNLEGSQGD TADTGTGDVNNE SQDTS
 DTGNAESEEQLQDSTQSNEENTLPNSNIDQSNENTDESSDSHTEETDES VSSSSSESGSSTP
 QDGGAAASSGAPSGDQSISANACLAKSYAASTDSSPVSNSSGSEEPVTSSSDSDVTASSDNP
 DSSSGDSAGDSEEPTEPEAGSTTETLTLIGGGAIYGETVKIENFSGQGIFSGNK AIDNTE
 GSSSKSDVLGGAVYAKTLFNLDSGSSRRTVTFSGNTVSSQSTTGQVAGGAIYSPTVTIATP
 VVFSKNSATNNANNTTDTQRKDTFGGAIGATSAVSLSGGAHFLENVADLGSAIGLVPGT
 QNTETVKLESGSYFYEKNKALKRATIIYAPVVSIIKAYTATFNQNRSL EEGSAIYFTKEASIE
 SLGSVLFTGNLVTLLSTTTEGTPATTSGDVTKYGA AIFGQIASSNGSQT DNPLKLIASG
 GNICFRNNEYRPTSSDTGTSTFCSIAGDVKLT MQAAKGKTISFFDAIRTSTKKTG TQATAY
 DTLDINKSEDS ETVNSAFTGTILFSELHENKSYIPQNVVLHSGSLVLKPNT ELHVISFEQK
 EGSSLVMTPGSVLSNQTVADGALVINNM TIDLSSVEKNGIAEGNI FTPELRIIDTTTGGSG
 GTPSTDSESNQNSDDTEEQNNNDASNQGESANGSSSPA VAAAHTSRTRNF AAAATATPT
 TTPTATTTTSNQVILGGEIKLIDPNGTFFQNPALRSDQQISLLVLPTDSSKMQAQKIVLTGD
 IAPQKGYTGTLTDPDQLQNGTISVLWKFD SYRQWAYVPRDNH FYANSILGSQMLMVT
 VKQGLLNDKMNLARFEEVSYNLWISGLGTMLSQVGTPTSEEF TYYSRGASVALDAKP
 AHDVIVGA AF SKMIGKTKSLKRENNYTHKGSEYSYQASVYGGKPFHFVINKKTEKSLPL
 LLQGVISYGYIKHDTVTHYPTIRERNKGEWEDLGWLTALRVSSVL RTPAQGDTKRITVY
 GELEYSSIRQKQFTET EYDPRYFDNCTYRNLAIPMGLAFEGELSGNDILMYNRF SVAYML
 SIYRNSPTCKYQVLSSGEGGEIICGVPTRNSARGEYSTQLYLGPLWTLYG SYTIEADAHTL
 AHMMNCGARMTF

SEQ ID NO: 18 (pmpD)(CT812)

MSSEKDIKSTCSKFSLSVVAAILASVGLASCVDLHAGGQSVNELVYVGPQAVLLLDQIR
 DLFVGSKDSQAEGQYRLIVGDPSSFQEKDADTLPGKVEQSTLFSVTNPVVFQGV DQQDQ
 VSSQGLICSFTSSNLDSPRDGESFLGIAFVG DSSKAGITLTDVKASLSGAALYSTEDLIFEKI
 KGGLEFASCSSLEQGGACAAQSILIHDCQGLQVKHCTTA VNAEGSSANDHLGFGGGAFF
 VTGSLSGEKS LYMPAGDMVVANCDGAISFEGNSANFANGGAIAASGKVL FVANDKKTS
 FIENRALSGGAIAASSDIAFQNC AELVFKGNCAIGTEDKGSLGGGAISSLGT VLLQGNHGI

TCDKNESASQGGAI FGKNCQISDNEGPVVRDSTACLGGAIAAAQEIVSIQNNQAGISFEG
 GKASFGGGIACGSFSSAGGASVLGTIDISKNLGAISFSRTLCTTSDLGQMEYQGGGALFGE
 NISLSENAGVLTFKDNIVKTFASNGKILGGGAILATGKVEITNNSEGISFTGNARAPQALPT
 QEEFPLFSKKEGRPLSSGYSGGGAILGREVAIHNAAVVFQNRQLQCSEEEATLLGCCGG
 GAVHGMDSSTIVGNSSVRFGNYYAMGQGVSGGALLSKTVQLAGNGSVDFSRNIASLGG
 GALQASEGNCELVDNGYVLFDRNRGRVYGGAI SCLRGDVVISGNKGRVEFKDNIATRLY
 VEETVEKVEEVEPAPEQKDNNELSFLGRAEQSFITAANQALFASDGDLSPESSISSEELA
 KRRECAGGAIFAKRVRIVDNQEA VVFSNNFSDIYGGAIFTGSLREEDKLDGQIPEVLISGN
 AGDVVFSGNSSKRDEHLPHGTGGGAICTQNL TISQNTGNVLFYNNVACSGGAVRIEDHGN
 VLLEAFGGDIVFKGNSSFRAQGSDAIYFAGKESHITALNATEGHAIVFHDALVFENLEER
 KSAEVLINSRENPGYTGSIRFLEAESKVPQCHVQQGSLELLNGATLCSYGFKQDAGAK
 LVLAAGAKLKILDSGTPVQQGHAI SKPEAEIESSEPEGASLWIAKNAQTTVPMVDIHTI
 SVDLASFSSSQEGTVEAPQVIVPGGSYVRS GELNLELVNTTGTGYENHALLKNEAKVPL
 MSFVASGDEASAEISNLSVSDLQIHVV TPEIEEDTYGHMGDWSEAKIQDGTLVISWNPTG
 YRLDPQKAGALVFNALWEEGAVLSALKNARFAHNLT AQRMEDYSTNVWGFAGGFR
 TLSAENLVADYGKGA YGGASAGVDIQLMEDFVLGVSGAAFLGKMDSQKFD AEVSRKG
 VVGSVYTGFLAGSWFFKGQYSLGETQNDMKTRYGV LGESSASWTSRGVLADALVEYRS
 LVGPVRPTFYALHFNPHYVEVS YASMKFEGTEQGREARSFEDASLTNTEIPLGMKEELAEI
 KGQFSEVNSLGISYAWEAYRKVEGGAVQLLEAGFDWEGAPMDLPRQELRVALENTE
 WSSYFSTVLGLTAFCGGFTSTDSKLG YEANTGLRLIF

SEQ ID NO: 19 (pmpE)(CT869)

MKKAFFFFLIGNSLSGLAREVPSRIFLMPNSVPDPTKESLSNKISLTGDTHNLTNCYLDNL
 RYILAILQKTPNEGAAVTITDYL SFFDTQKEGIYFAKNLTPESSGGAIGYASPNSTVEIRDIT
 GPVIFENNTCCRLFTWRNPYAADKIREGGAIHAQNLYINHNDVVGFMKNFSYVQGGAI
 STANTFVVSENQSCFLFMDNICIQNTAGKGGAIYAGTSNSFESNNCDLFFINNACCAGG
 AIFSPICSLTGNRGNIVFYNNRCFKNVETASSEASDGGAIKVTTRLDVTGNRGRIFSDNIT
 KNYGGAIYAPVVTLVDNGPTYFINNIANNKGGAIYIDGTSNSKISADRHAIIFNENIVTNV
 TNANGTSTSANPPRRNAITVASSSGEILLGAGSSQNLIFYDPIEVSNAGVSVSFNKEADQT
 GSVVFSGATVNSADFHQRNLQTKTPAPLTL SNGFLCIEDHAQLTVNRFTQTGGVVSLGN
 GAVLSCYKNGTGDSASNASITLKHIGLNLSSILKSGAEIPLWVEPTNNSNNYTADTAATF
 SLSDVKLSLIDDYGNSPYESTDLTHALSSQPMLSISEASDNQLQSENIDFSGLNVPHYGWQ
 GLWTWGWAKTQDPEPASSATITDPQKANRFHRTLLL TWLPAGYVPSPKHRSPLIANTLW
 GNMILLATESLKNSAELTPSCHPFWGITGGGLGMMVYQDPRENHPGFHMRSSGYSAGMI
 AGQTHTFSLKFSQTYTKLNERYAKNNVSSKNYSCQGEMLFSLQEGFLLTKLVGLYSYGD
 HNCCHFYTQGENLTSQGTFRSQTMGGAVFFDLPMKPFGSTHILTAPFLGALGYSSL SHF
 TEVGAYPRSFSTKTPLINVLVPIGVKGSFMNATHRPQAWTVELAYQPVLYRQEPGIAAQL
 LASKGIWFGSGSPSSRHAMSYKISQQTQPLSWLTLHFQYHGFYSSSTFCNYLNGEIALRF

SEQ ID NO: 20 (pmpF)(CT870)

MIKRTSLSFACLSFFYLSTISILQANETDTLQFRRFTFS DREIQFVLDPASLITAQNIVLSNLQ
 SNGTGACTISGNTQTQIFSNSVNTTADSGGA FDMVTTSFTASDNANLLFCNNYCTHNKG
 GGAI RSGGPIRFLNNQDVLFYNNISAGAKYVGTGDHNEKNRGGALYATTTITLTGNRTLAF
 INNMSGDCGGAISADTQISITDTVKGILFENNHTL NHIPYTAENMARGGAICSRDLCSIS
 NNSGPIVFENYNQGGKGGAISATRCVIDNNKERIIFSNNSSLGWSQSSASNGGAIQTTQGF
 TLRNNKGSYFDSNTATHAGGAINCGYIDIRDNGPVYFLNNSAAWGA AFNLSKPRSATN
 YIHTGTGDIVFNNNVVFTLDGNLLGKRKL FHINNNEITPYTL SLGAKKDTRIYFYDLFQW
 ERVKENTSNNPPSPTSRNTITVNPETEFSGAVVFSYNQMSSDIRTLMGKEHNYIKEAPTTL
 KFGTLAIEDDAELEIFNIPFTQNPTSLALGSGATLTVGKHGKLNITNLGVILPILKEGKSP
 PCIRVNPQDMTQNTGTGQTPSSSTSPMIIFNGRLSIVDENYESVYDSMDLSRGKAEQLI
 LSIETTNDGQLDSNWQSSLNTSLLSPPHYGYQGLWTPNWITTTTITLNNNSSAPTSATSI

AEQKKTSETFTPSNTTTASIPNIKASAGSGSGSASNSGEVTTTKHTLVVNWAPVGYIVDPIR
RGDLIANSLVHSGRNM TMGLRSLLPDNSWFALQGAATTLFTKQKRLSYHGYSSASKG
YTVSSQASGAHGHKFLLSFSQSSDKMKEKETNNRLSSRYYLSALCFEHPMFDRIALIGAA
ACNYGTHNMRSFYGTKSSKGKFHSTTLGASLRCEL RDSMPLRSIMLTPFAQALFSRTEP
ASIRESGDLARLFTLEQAHTAVVSPIGIKGAYSSDTWPTLSWEMELAYQPTLYWKRPLL N
TL LIQNNGSWVTNTPLAKHSFYGRGSHSLKFSHLKLFANYQAEVATSTVSHYINAGGA
LVF

SEQ ID NO: 21 (pmpG)(CT871)

MQTSFHKFFLSMILAYSCCSLSGGGYAAEIMIPQGIYDGETLTVSFPYTVIGDPSGTTVFSA
GELTLKNDNSIAALPLSCFGNLLGSFTVLGRGHSLTFENIRTSTNGAALSDSANSGLFTIE
GFKELSFNSCNLLAVLPAATTNNGSQPTTTSTPSNGTIYSKTDLLLLNNEKFSFYSNLV
SGDGGAI DAKSLTVQGISKLCVFQENTAQAADGGACQVVT SFSAMANEAPIAFIANVAGV
RGGGIAAVQDGGQGVSSSTSTEDPVVSFSRNTAVEFDGNVARVGGGIYSYGNVAFLNNG
KTLFLNNV ASPVYIAAEQPTNGQASNTSDNYGDGGAIFCKNGAQAAGSNNSGVS SFDGE
IIFDGNLKR TAKENAADVNGVT VSSQAISMGGSGKITT LRAKAGHQILFNDPIEMANGNN
QPAQSSEPLKINDGEGYTGDI VEANGNSTLYQNV TIEQGRIVLREKAKLSVNSLSQTGGSL
YMEAGSTLDFVTPQPPQPPAANQLT LSLNLHLSSLLANNAVTNPPTNPPAQD SHPAII
GSTTAGSVTISGPIFFEDLDDTA YDRYDWLGSNQKIDVLKLQLGTQPSANAPSDLTLGNE
MPKYGYQGSWKLAWDPNTANNGPYTLKATWTKTGYNPGPERVASLVPNSLWGSILDIR
SAHSAIQASVDGRSYCRGLWVSGVSNFFYHDRDALGQGYRISGGYSLGANSYFGSSMF
GLAFTEVFGRSKDYVVCRSNHHCIGSVYLSTKQALCGSYLFGDAFIRASYGFGNQHMK
TSYTFAEESDVRWDNNCLVGEIGVGLPIVITPSKLYLNELRPFVQAEFSYADHESFTEEGD
QARAFRSGHLMNLSVPVGVKFDRCSSTHPNKYSFMGAYICDAYRTISGTQTLLSHQET
WTTDAFH LARHG VIVRGS MYASLTSNIEVYGHGRY EYRDTSRGYGLSAGSKVR F

SEQ ID NO: 22 (pmpH)(CT872)

MPFSLRSTSFCFLACLCSYSGFASSPQVLTPNVTT PFKGDDVYLNGDCAFVN VYAGAE
NGSIISANGDNLTTTGQNH TLSTFTDSQGPVLQNYAFISAGETLTLKDFSSLMFSKNVSCGE
KGMISGKTVSISGAGEVIFWDNSVGYSPLSIVPASTPTPPAPAPAPAASSSL SPTVSDARKG
SIFSVETSLEISGVKKGV MFDNNA GNFGTVFRGNSNNNAGSGGSGSATTPTSFTVKNCCKGK
VSFTDNVASC GGGVVYKGT VLFKDNEGGIFFRGNTAYDDLGLAATS RDQNTETGGGG
GVICSPDDSVKFEGNKGSIVFDYNFAKGRGGSILTKEFSLVADDSV VFSNNTAEKGGGAI
YAPTIDISTNGGSILFERNRAAEGGAICVSEASSGSTGNLTLSASDGDIVFSGNMTSDRPG E
RSAARILSDGTTVSLNASGLSKLIFYDPV VQNN SAAGASTPSPSSSSMPGA VTINQSGNGS
VIFTAESLTPSEKLQVLNSTSNFPGALT VSGGELVVTEGATLTTGTITATSGRVT LGSGAS
LSAVAGAANNNTCTVSKLGIDLESFLT PNYKTAILGADGT VTVNSGSTLDL VMESAE
VYDNPLFVGSLTIPFVTLSSSSASNGVT KNSVTINDADAAHYGYQGSWSADWTKPPLAP
DAKGMVPPNTNNTLYLTWRPASNYGEYRLDPQRKGELVPNSLWVAGSALRTFTNGLKE
HYVSRDVGFVASLHALGDYILNYTQDDRDGFLARYGGFQATAASHYENG SIFGVAFGQ
LYGQTKSRMYYSKDAGNMTMLSCFGRSYVDIKGTETVMYWETAYGYSVHRMHTQYF
NDKTQKFDHSKCHWHNNNYAFVGA EHNFL EYCIPTROFARDYELTGFMRFEMAGGW
SSSTRETGSLTRYFARGSGHNMSLP IGVAVSHVRRSPPSKLT LNMGYRPDIWRVTPH
CNMEIANGVKTPIQGSPLARHAFFLEVHDTLYIHHFGRAYMNYSLDARRRQT AHFVSM
GLNRIF

SEQ ID NO: 23 (pmpI)

MRPDHMFCCCLCAAILSS TAVLFGQDPLGETALLTKNPNHV VCTFFEDCTMESLFPALC
AHASQDDPLYVLGNSYCWVFSKLHITDPKEALFKEKGDL SIQNFRLSFTDCSSKESSPSII
HQKNGQLSLRNNGSMSFCRNHAEGSGGAISADAFSLQHNYLFTA FEENSSKGNNGGAIQA

QTFSLSRNVSPISFARNRADLNGGAICCSNLCISGNVNPLFFTGNSATNGGAICCSIDLNTS
 EKGSLSLACNQETLFA SNSAKEKGGA IYAKH MVLR YNGPVSFINNSAKIGGAIAIQSGGS
 LSILAGEG SVL FQNNSQRTSDQGLVRNAIYLEKDA ILSLEARNGDILFFDPIVQESSKES
 PLPSSLQASVTSPTPATASPLVIQTSANRSVIFSSERLSEBEKTPDNLTSQLQQPIELKSGRL
 VLKDR AVL SAPSL SQDPQALLIMEAGTSLKTSSDLKLATLSIPLHSLDTEKSVTIHAPNLSI
 QKIFLSNSGDENFYENVVELLSKEQNNIPLLTLSKEQSHLHLPDGNLSSHFGYQGDWTF SW
 KDSDEGHSLIANWTPKNYVPHPERQSTLVANTLWNTYSDMQAVQSMINTIAHGGA YLF
 GTWGS AVSNLFY AHDSSGKPIDNWHHRS LGYLF GISTHSLDDHSFCLAA GQLLGKSSDSF
 ITSTETTSYIATVQAQLATPLMKISAQACYNESIHELKTKYRSFSKEGFGSWHSVAVSGEV
 CASIPVSNNGSLFSSFSIFSKLQGFSGTQDGFEESSGEIRSFSASSFRNISLPMGITFEKKSQ
 KTRNYYYFLGAYIQDLKRDVESGPVVLLKNAVSWDAPMANLDSRAYMFRLTNQRALH
 RLQTLNVS YVLRGQSHSYSLDLGTTYRF

SEQ ID NO: 24 (MOMP)(CT681)

MKKLLKSVLVFAALSSASSLQALPVGNPAEPSLMIDGILWEGFGGDPCDPCATWCD AIS
 MRVGYYGDFVFDRVLKTDVNKEFQMGA KPTTDTGNSAAPSTLTARENPA YGRHMQDA
 EMFTNAACMALNIWDRFDVFCTLGATSGYLKGNSASFNLVGLFGDNENQKTVKAESVP
 NMSEFQSVVELYTDTFEAWSVGARAALWECGCATLGASEQYAAQSKPKYBELNVL CNA
 AEFTINKPKGYVGKEFPLDLTAGTDAATGTKDASIDYHEWQASLALS YRLNMFTPYIGV
 KWSRASFDADTIRIAQPKSATAIFDTTTLNPTIAGAGDVKTGAEGQLGDTMQIVSLQLNK
 MKSRKSCGIAVGTTIVDADKYAVTVETRLIDERA AHVNAQFRF

SEQ ID NO: 25 CSFIGGITYL

SEQ ID NO: 26 SFIGGITYL

SEQ ID NO: 27 SIIGGITYL

SEQ ID NO: 28 (Cap1)(CT529)

MASICGRLGSGTGNALKAFFTQPNMKMARVVNKT KGMDKTIKVAKSAAELTANILEQA
 GGAGSSAHITASQVSKGLGDARTVVALGNAFNGALPGTVQSAQSFFSHMKAASQKTQE
 GDEGLTADLCVSHKRRAAAAVCSIIGGITYLATFGAIRPILFVNKMLAKPFLSSQTKANM
 GSSVSYMAANHAASVVGAGLAISAERADCEARCARIAREESLLEVPGREENACEKKVAG
 EKAKTFTRIKYALLTMLEKFLECVA DVFKLVPLPITMGIRAI VAAGCTFTSAIIGLCTFCAR
 A

SEQ ID NO: 29 (groEL-like hsp60 protein)

MVAKNIKYNEEARKKIQKGVKTLAEAVKVTLGPKGRHVVIDKSFGSPQVTKDGVTVAK
 EVELADKHENMGAQMVKEVASKTADKAGDGT TATVLA EAIYTEGLRNV TAGANPMD
 LKRGIDKAVKVVDQIRKISKPVQHHKEIAQVATISANNDABIGNLIAEAMEKV GKNGSI
 TVBEAKGFETVL DIVEGMNFNRGYLSSYFATNPETQECVLEDALVLIYDKKISGIKDFLPV
 LQQVAESGRPLIIAEDIEGEALATLVVNRIRGGFRVCAVKAPGFGDRRKAMLEDIAITG
 GQLISEELGMKLENANLAMLGKAKKVIVSKEDTTIVEGMGEKEALEARCESIKKQIEDSS
 SDYDKEKLQERLAKLSGGVAVIRVGAATEIEMKEKKDRVDDAQHATIAAVEEGILPGGG
 TALIRCIPTLEAFLPMLTNEDEQIGARIVLKALSAPLKQIAANAGKEGAIIFQQVMSRSANE
 GYDALRDAYTDMLEAGILDPKAVTRSALESAASVAGLLLTTEALIA BIPBEKPAAAPAMP
 GAGMDY

SEQ ID NO: 30 (omp2/omcB)

MRIGDPMNKLIRRAVTIFA VTSVASLFASGVLETSMAESLSTNVISLADTKAKDNTSHKS
 KKARKNHSKETPVDRKEVAPVHESKATGPKQDSCFGRMYTVKVNDDRNV EITQAVPEY

ATVGSPPYIEITATGKRDCVDVIITQQLPCEAEFVRSDPATTPADGKLVWKIDRLGQGEK
SKITVWVKPLKEGCCFTAATVCACPEIRSVTKCGQPAICVKQEGPENACLRCPVVYKINI
VNQGTATARNVVVENPVPDGYAHSSGQRVLTFILGDMQPGEHRTITVEFCPLKRGRAT
NIATVSYCGGHKNTASVTTVINEPCVQVSIAGADWSYVCKPVEYVISVSNPGDLVLRDV
VVEDTLSPGVTVLEAAGAQISCNKVVWTVKELNPGESLQYKVLVRAQTPGQFTNNVVV
KSCSDCGTCTSCAEATTYWKGVAAATHMCVVDTCDPVCVGENTVYRICVTNRGSAEDTN
VSLMLKFSKELQPVSFSGPTKGTITGNTVVFDLPRLGSKETVEFSVTLKAVSAGDARGE
AILSSDTLTVPVSDTENTHIY

SEQ ID NO: 31

MFRTYLSRSLFFILALFFCSACDSRSMITHGLSGRDANEIVLLVSKGVAAQKVPQAASST
GGSGEQLWDISVPAAQITEALAILNQAGLPRMKGTSLLDLFAKQGLVPSEMQUEKIRYQEG
LSEQMATTIRKMDGIVDASVQISFSPEEEDQRPLTASVYIKHRGVLDNPNNSIMVSKIKRLV
ASAVPGLCPENVSVVSDRASYSIDITINGPWGLSDEMNYVSVWGILAKHSLTKFRLVFYF
LILLFILSCGLLWVIWKTHTLISALGGTKGFFDPAPYSQLSFTQNKPAKTPGAAEGAE
AQTASEQPSKENAEKQEENNEDA

SEQ ID NO 32 (CT600)

MRKTIFKAFNLLFSLFLSSCSYPCRDWECHGCD SARPRKSSFGFVPFYSDDEIIQQA FVED
FDSKEEQLYKTSAQSTSFRNITFATDSYSIKGEDNLTILASLVRHLHKSPKATLYIEGHTDE
RGAAAYNLALGARRANAVKQYLIKQGIAADRLFTISYGKEHPVHPGHNELAWQQNRRT
EFKIHAR

SEQ ID NO 33 (CT541)

MKNILSWMLMFAVALPIVGCDNGGGSQTSATEKSMVEDSALTDNQKLSRTFGHLLSRQ
LSRTEDFSLDLVEVIKGMQSEIDGQSAPLTDTEYEKQMAEVQKASFEAKCSENLASAEKF
LKENKEKAGVIELEPNKLQYRVVKEGTGRVLSGKPTALLHYTGSFIDGKVFDSSEKNKEP
ILLPLTKVIPGFSQGMQGMKEGEVRVLYIHPDLAYGTAGQLPPNSLLIFEVKLIEANDDNV
SVTE"

SEQ ID NO 34 (CT623)

MKKYFYKGFVGALLACGSTNLAFQAASSMDSQLWSVEDLDSYLSSKGFVETRKRKRDGV
LRLAGDVRARWIYAKEDLETTQTPAKPMLPTNRYRSEFNLYVDYTAANSWMTSKMNW
VTIAGGESSAAGLDINRAFLGYRFYKNPETQAEVFAEIGRSGLDIFDSVDVQFNSNFDGIH
LYAARRISEKLPTMIVHGGPFV VNMAEKEYAWVVEAILNKLPGNFVVKTSVVDWNTL
TAKTNDPADASAAQPAKPNTKYDYLWVQWLVLVGKSTAMPWFNGQTKNLYTYGAYLFN
PLAEIPENWKQSTPTTKITNGKENHAWFIGCSLGGVRRAGDWSATVRYEYVEALAIPEI
DVAGIGRGNQMKYWFQAQAIKQGLDPKESNGFTNYKGVSYQFVMGLTDSVSFRAYAA
SKPANDNLGSDFTYRKYDLGLISSF

SEQ ID NO 35 (CT700)

MWLIVASTLLACLAMALVFKAYRHVISFRSYVNQVIRDVRLSVDLKEWAVAEMRLAPIL
KKRQYRRKYLFEYIRILRELERFEEAEKLLGEAKKLKLAGAHFFLEVAHKAFRHGAYKE
AAHAFSLLSAELMGEREVARYTISLVYLGEVDAACRIIEPWIGPLAHQEVFISVGHYFAT
KRYADAIDFYRRARSLGSCPIDVLYNLAHSLRICGQYVDAGMLFRELLGDPVYKDEAMF
NIGLCEQKLGNSKKALLIYQNSSELWVRGDALMMRYAALAAADQQDYQLAEHCWTLAF
RCQSYADDWNCCVHYGLALCHLKKYAEAEKVYLRVIQKTPDCLVACKALAWLAGVG
HATMISAREGIAYAKRALQIKRSPEVLELLSACEAREGNFDVAYDIQAILAERDTTAKER
ERRSQILKNLRQKLPIDQKHIVEVSLLLAA

SEQ ID NO 36 (CT266)

MLVESQLGLEDVLEAFSENFQDIQSKSFIESFQDKKLRRRTVIQRFLHHPHLLHHDIARAAYL
LAALEEGVDLG YQFLCMHQTSQAALLFRRAGFLWGGLPYPGEHAEMAMLLSRIAIFY
DTSYEQVQKMIAFQHALFSHERNIFPALWSQEGSRNQEKTA VSKLLFCQKEARIEDQFT
LTDMSLGFWMRRTPSFSA YVSGSGCKSGVGAFLIGDVGV LNYGPCVGDPEGCLGFGLC
GQVKEFSCQEKDEEV SISFAGALSQPSSRRTGFSYLQDALFSTNSCYCIDITEQKCHVASS
LDRENQDAFFAIFCKGSQCQVCNGPKLRTGSPDSYKGPAYDVLIKGEKETVRILSSSPHM
EIFSLQGKDRFWGSNFLINLPYTQNSINILFEKA

SEQ ID NO 37 (CT077)

MGKFFASYLLILAPFFLQSCSAPSRTTLEGVRMTIPYRIVFGEALSPDAFQQAQKEIDRVF
DHIDQTFNNWNPLSEISRINRTTKQTPILSPALFAFLCEIDHFHAFSDGRFDP TLGALKSL
WLLHLKSHTIPSQELQHL YKHSSGWHLISLDKTQQT LRKLSPLVQLDLCGT VKGFAVDL
LGTACAQFCQNY YVEWGGEIKTKGKHPSGRSWAVASSATPEILHLHDHAIATSGSQYQR
WHVDNKTYTHILDPLTGTPLEDSSHPI LAVSVINESCAFADAMATALTTFSSKQEALDWA
NKKHLCA YITDKNVS

SEQ ID NO 38 (CT456)

MTENSISGYQPTVTTSTSSSTTSASGASGSLGASSVSTTANATVTQTANATNSAATSSSIQTG
ETVVNYTNSASAPNVTVSTSSSTQATATS NKTSQAVAGKITSPDTSESSETSSSTSSSDHIP
SDYDDVGSNSGDISNNYDDVGSNNGDISSNYDDAAADYEPIRTTENIYESIGGSRTSGPEN
TSGGAAAALNSLRGSSYSNYDDAAADYEPIRTTENIYESIGGSRTSGPENTSGGAAAALN
SLRGSSYSNYDDAAADYEPIRTTENIYESIGGSRTSGPENTSDGAAAALNSLRGSSYT TG
PRNEG VFGPGPEGLPDMSLPSYDPTNKTSLLTFLSNPHVKSKMLENSGHFVFIDTDRSSI
LVPNGNWDQVCSIKVQNGKTKEDLDIKDLENMCAKFCTGFSKFSGDWDSLVEPMVSAK
AGVASGGNLPNTVIINNKFCTCVAYGPWNSQEASSGYTPSAWRRGHRVDFGGIFEKAND
FNKINWGTQAGPSSDDGISFSNETPGAGPAAAPSPTPSSIPINNVNVVGGTNVNIGDTNV
NTTNTPTTQSTDASTDTS DIDDINTNNQTD DINTTDKDS DGAGGVNGDISETESSSGDDS
GSVSSSES DKNASVGN DGPAMKDILSAVRKHL DVVYPGENGGSTEGPLPANQTLGDVIS
DVENK GSAQDTKLSGNTGAGDDPTTTAAVGN GABEITLSDTDSGIGDDVSDTASSSGD
ESGGVSSPSES NKNTAVGNDGPSGLDILAAVRKHL DKVYPGDNGGSTEGPLQANQTLG
DIVQDMETTGTSGETV VSPWKGSTSTESAGGSGSVQTL LSPPPPTSTTTLRGTGTGATT
SLMMGGPIKADIITGGGGGRIPGGGTLEKLLPRIAHLDISFDAQGD LVSTEEPQLGSIVNK
FRQETGSRGILAFVESAPGKPGSAQVLTGTGGDKGNLFQAAAAVTQALGNVAGKVNLA I
QGQKLSSLVNDDGKGSVGRDLFQAAAQTTQVLSALIDTVG

SEQ ID NO 39 (CT165)

MFQPETVPSNRSTETTPQNI EYNDNRNFTNHTTEDVIRIGERLQRQFYNMTEESRV PFTTS
PSHHTGNWKT AFLYNLSQVVAHIFFSTVQPIRVKPTRIPPSPTPPPEGTTTAETSTSENKVT
TISKEQEVTTKPLLVRERRSLLHSQ

SEQ ID NO 40 (CT713)

MSSKLVNYLRLTFLSFLGIAS TSLDAMPAGNPAPFVIPGINIEQKNACSF DL CNSYDVL SA
LSGNLKL CFCGDYIFSEEAQVKDVPVVTSTTAGVGPSPDITSTTKTRNFDLVNCNLNTN
CVAVAFSLPDRSLSAIPLFDVSFEVKVGGLKQYYRLPMNAYRDFTSEPLNSESEVTDGMI
EVQSNYGFVWDVSLKKVIWKDGVSVFVGADYRHASCPIDYILANSQANPEVFIADSDG
KLNFKESV CVGLTTYVNDYVLPYLA FSGSVSRQAPDDSFKKLED RFTNLKFKVRKITS
SHRGNICIGATNYVADNFFYNVEGRWGSQRAVNVSGGFQF

SEQ ID NO 41 (CT082)

MSISGSGNVSPATPDFDPSILMGRQAASAHAAKEASGASKATETSAAEQQALISSGTELD
YVTDLQQSEGKYKKTLDKTSKSPKTKLGNFSKVRAGTKGFLTGF GTRASRISARKAEN

NGEGMSMIPSQMEYVKKKGNRVSPMQNFYLGASGLWSPTSDVSSITENCLGATALSTT
 PLLTTMQDPVSIHLSSGEITALASFNPVNTASLNEQTINAWTEARLGEMVSTLLDPNI
 ETSSLLRRAPTVSNEGMVDVSDMGNQTTSLMEGLVNTVVDPAABEEKKTGELSLEE
 MAAMAKMMAALLSSGQGMVFIASSTPSSGLTQFPEPKFSGTIPHHFSKKEDNETIWGL
 DSQIGSIAFDTRRENNASPLPTTSLHEEASYPFVGEAPLDVNEIPFAVQHSTVFSKETANT
 EQALIQNESLGEIPVSAEVVGQDTVSSAYQFPShLGMVLA VPLSTEDYKTA VEHKGP
 GGPPDPLIYQYRNVAVDPAIIFQSPSPFSVSSRFVQ GKPEAVAVYND DQEEAAGGNRDS
 DEGKDQEQDKTRETEDAGGDS

SEQ ID NO 42 (CT181)

MLSKFCKLSLSAILLINTLAPSETFSEEGTSGFLGRMKSWILKDKTILSTTEESQTS AIEKVS
 DLLSWKRYDYTQESGFAIQFPESPEHSEQVIEVPQSDLAIRYDTYVAETPSDSTVYVVSIV
 EYPEKIDISRPELNLQEGFAGMLYALPESQVLYLKATALQGHKALEFWIACDDVYFRGM
 LVSVNHTLYQVFMVYKGRSPEILDKEYSTFIQSFVKVTKVRNSKKMDIRKRVSL

SEQ ID NO 43 (CT050)

MNDTKNNISSFWNPKNKVVTKVLLKVSETGIESTPGIVKHNQLITQSENPTDPTDAVTFK
 YLKENYTKENDPNPGFLPTTGGTMTGDDIMQGNVTDIVMYTNGQONETDDSAVTIGY
 LNEKADEIKSNQITTA VAGLSNINSQISTLHQLLGIAEDPDTVTNPDLKTSGGTVYEDI
 DMSSNTVSDLGTPNTKDTKSAINVEFVQAKITSPQMAFLKNNDTNLSNITVSEYFNWLQ
 DPTQAPTPEPDPDEPAPEPEPDTSDSSGSGSENADPAPTNPSDSNAQNNPTPSSNGATAS
 IRKLAATTTTVPDTEIAPAAEDPNLPNTTFSEKSPLWEEFFSFS DSSRSEMVIQKTGILTFS
 MQGTWENPSSSQTPSTDPISELTVTPTTDTTPESPSPPEAPAPEATPSPTNNNLTA SIK
 TFSRKYNLSATPSPTPTTPTPTTITKTLSSGQSCTLQIPVQATRSVLKLYVNPNNSS
 GGSSGSGGSSQPETTPTGITLQSFWSLVLTGGEITKATSTPSTPSQP

SEQ ID NO 44 (CT157)

MSVQGSSSLKYSDLFKPPEPTSSTDSSKEPPKESAWKVVS HSRGRRRARSNPSPTSQNT
 SPKDSLVARTDKAATDIFNSAKHKA IETTKRSDQQRSLHILHLLAENPEPIVFHSAHQT
 NHNDPQRM LCAILQANRIITMRIFNIGSPEIRALIRAVRRNIPVVVSAWNFPNLSNWR
 ESELCELGRNPQICLHKKTTLIDNQLTIIGTANYTKSSFFKDINLTALIQNPALYSLSDT
 RGSVSGSQTISYYPLPFPQSNTKILPIIQEIQKAQRTIKIAMNIFSHTEIFLALEQARLRGVTI
 TIVINKKESAHTLDILHRISALLLLKSVTTVDSLHAKICLIDNQTIFGSPNWTYHGMHKN
 LEDLLIVTPLTPKQIHSIQEIWAFLKNSSPV

SEQ ID NO 45 (CT128)

MDRSPLFLIIMGAPGSGKGTQSKLLASQLSLLHSSGDLLRDAVSKDTPLSQEIKSYLDQG
 KLLPDTLVWKL VHEKLDEFQQDTLLRRLSFLSRSENSAILDGFPRVTQAKLLHEFLSSYF
 PNYKVILLDISDEEVLNRLTSRYICPACQGIYNEQQGFSSCPKCSVELIRRSDDTLEVILDRI
 QTYKQETQPVLDYYTEKQKLITIDANAPTQQVFQSILDSLSASLVYQERDCCNCD CDD

SEQ ID NO 46 (CT153)

MTKPSFLYVIQPFVFNPRLGFRFSTDSDTYIEEENRLASFIESLPLEIFDIPSFMETAISNSPYI
 LSWETTKDGALFTILEPKLSACAATCLVAPSIQMKSDAELLEIKQALLRSSHDGVKYRIT
 RESFSPEKKT PKVALVDDDIELIRNVDFLGRAVDIVKLDPINILNTVSEENILDYSFTRETA
 QLSADGRFGIPPGTKLFPKPSFDVEIST SIFEETTSFTRSFSA SVTFSVPDLAATMPLQSPPM
 VENGQKEICVIQKHLFPSYSPKLVDIVKRYKREAKILINKLAFGMLWRHRAKSQILTEGS
 VRLDLQGFTESKYNYQIQVGSHTIAAVLIDMDISKIQSKSEQAYAIRKIKSGFQRLDDYH
 IYQIERKQTFSPKHRSLSSSHSESDLDLSEAAAFSGSLTCEFVKKSTQHAKNTVTCST
 AAHSLYTLKEDDSSNPSEKRLDSCFRNWIENKLSANSPDSWSAFIQKFGTHYIASATFGGI
 GFQVLKLSFEQVEDLHKKISLETA AANSLLKGSVSSSTESGYSSYSSTSSSHTVFLGGTV

LPSVHDERLDFKDWSESVHLEPVPIQVSLQPITNLLVPLHFPNIGAAELSNKRESLQQAIR
VYLKEHKVDEQGERTTFTSGIDNPSSWFTLEAAHSPLIVSTPYIASWSTLPYLFPTLRERSS
ATPIVIFYFCVDNNEHASQKILNQSYCFLGSLPIRQKIFGSEFASFPYLSFYGNAKEAYFDNT
YYPTRCGWIVEKLNNTQDQFLRDGDEVRLKHVSSGKYLATTPLKDTHTGLTRTTNCEDA
IFIKKSSGY

SEQ ID NO 47 (CT262)

MKKFLLLSLMSLSSLPTFAANSTGTIGIVNLRRCLEESALGKKESAEEFEKMKNQFSNSMG
KMEEELSSISYKLODDDYMEGLSETAAAEELRKKFEDLSAEYNTAQGGYYQILNQSNLKR
MQKIMEEVKKASETVRIQEGLSVLLNEDIVLSIDSSADKTDAAVIKVLDDSFQNN

SEQ ID NO 48 (CT276)

MFKRPAKNFFDEVQTLYEDSGANSTSYSIYPQRTERLENHSNIFEPAKPAETRLLSQEEHS
QWTDQQEELATQESSFPPEPETTLGEGVSFKGELTFERLLRIDGTFEGILVSKGKIIVGPQG
YVKANIELEEAVIAGVVEGNITVTGRVSLQGRAMVTGDIQAGSLCVDEGVRLCGYVSIQ
GAPSNEQEEIDS

SEQ ID NO 49 (CT296)

MRAVLHLEHKRYFQNHGHILFEGLAPVSDCKQLEAELKLFLKEVAVVKDRHLQRWREN
VHRTLPEVQMIVKRVRLDHLAAELTHRSRVALVRDLVWQKQEEIFFDDCDCSVLLCLSG
EKAGWGLFFSGEYTPQDVFNWGAGDTAILRFSSAGFPN

SEQ ID NO 50 (CT372)

MQAAHHHYHRYTDKLHRQNHKKDLISPKPTEQEACNTSSLSKELIPLSEQRGLLSPICDFI
SERPCLHGVSVRNLKQALKNSAGTQIALDWSILPQWFNPRVSHAPKLSIRDFGYSAHQTV
TEATPPCWQNCFNPSAAVTIYDSSYGKGVFQISYTLVRYWRENAATAGDAMMLAGSIN
DYPSTRQNIQSQFTFSQNFNERVSLTIGQYSLY AIDGTLYNNDQQLGFISYALSQNPTATYS
SGSLGAYLQVAPTASTSLQIGFQDAYNISGSSIKWSNLTKNRYNFHGFASWAPRCCLGSG
QYSVLLYVTRQVPEQMEQTMGWSVNASQHSSKLYVFGRYSGVTGHVFPINRTYSFGM
ASANLFNRNPQDLFGIACAFNNVHLSASPNTRKRYETVIEGFATIGCGPYLSFAPDFQLYL
YPALRPNKQSARVYSVRANLAI

SEQ ID NO 51 (CT412)

MNRVIEIHAYDQRQLSQSPNTNFLVHHPYLTLIPKFLLGALIVYAPYSFAEMELAISGHK
QGKDRDTFTMISSCPEGTNYIINRKLILSDFSLLNKVSSGGAFRNLAGKISFLGKNSSASIH
FKHININGFGAGVFSSESIETDLRKLVAFGSESTGGIFTAKEDISFKNNHHIAFRNNITKGN
GGVIQLQGDMKGSVSFVDQRGAIFTNNQAVTSSSMKHSGRGGAISGDFAGSRILFLNNQ
QITFEGNSAVHGGAIYNKNGLVEFLGNAGPLAFKENTTIANGGAIYTSNFKANQQTSPILF
SQNHANKKGGAIYAQYVNLEQNQDTIRFEKNTAKEGGGAISSQCSITAHNTIIFSDNAA
GDLGGGAILLEGKKPSLTILAHSGNIAFSGNTMLHITKKASLDRHNSILIKEAPYKIQLAA
NKNHSHIFFDPVMALSASSSPIQINAPEYETPFFSPKGMIVFSGANLLDDAREDVANRTSIF
NQPVHL YNGTLSIENG AHLIVQSFKQTGGRISLSPGSSLALYTMNSFFHGNISSKEPLEING
LSFGVDISPSNLQAEIRAGNAPLRLSGSPSIHDPEGLFYENRDTAASPYQMEILLTSDKIVDI
SKFTTDSLVTNKQSGFQGAWHFSWQPNTINNTKQKILRASWLPTGEYVLESNRVGRAVP
NSLWSTFLLQTASHNLGDHLCNNRSLPTS YFGVLIGGTGAEMSTHSSEESFISRLGAT
GTSIIRLTPSLTSLGGGSHMFGDSFVADLPEHITSEGIVQNVGLTHVWGPLTVNSTLCAAL
DHNAMVRICSKKDHTY GKWDTFGMRGTLGASYTFLEYDQTMRVFSPANIEATNILQRA
FTETGYNPRSFSTKLLNIAIPIGIGYBFC LGNSSFALLGKGSIGYSRDIKREN PSTLAHLAM
NDFAWTTNGCSVPTSAHTLANQLILRYKACSLYTTAYTINREGKNLSNSLSCGGYVGF

SEQ ID NO 52 (CT480)

MIDKIIRTLVLSLFLLYWSSDLLEKDVKSIRKELKALHEDVLELVRISHQQKNWVQSTDF
SVSPEISVLKDCGDPAPFNLLCEDPYVEKVVPSSLKEGFVPKGILRTAQVGRPDNLSPFNG
FVNIVRFYELCVPNLAVEHVKGYYEAFPSLALKIEEHYVEDGSGDKEFHLYLRPNMFWEF
IDPTLFPKNITLADSFLRPHPVTAHDVKFYDVMNPYVAEMRAVAMRSYFEDMVSVR
VENDLKLIVRWRAHTVRNEQGEEEKVLVSFANTLALQPLPCFVYQHFANGEKIVPED
SDPD TYRKDSVWAQNFSSHWAYNYIVSCGAFRFAGMDDEKITLVRNPNYHNPFALVE
KRYTYMKDSTDLSLQDFKAGKVDIAYFPNHNVDNLASFMTSAYKEQAARGEAILEKNS
SDRSYSYIGWNCLSLFFNNRSVRQAMNMLIDRDRIEQCLDGRGVSVSGPFSLCSPSYNR
DVEGWQYSPBEAARKLEEGLWIDADGDGIREKVIDGVVVPFRFRLCYVYKSVTARTIAE
YVATVCKEVGIECCLLGLDMADYSQALEEKNFDAILSGWCLGTPPEDPRALWHSEGALE
KGSANAVGFCNEEADRIEQLSYEYDSNKRQALYHRFHEVIHEESPYAFLYSRQYSLVYK
EFVKNIFVPTHEQDLIPGAQDET VNLSMLWVDKEEGRCSAIS

SEQ ID NO 53 (CT548)

MLKMFWLNSLVFFSLLSACGYTVLSPHYVEKKFSLSEGIYVCPIEGDSLGLVSSLSYEL
EKRGLHTRSQGTSSGYVLKVSFLNETDENIGFAYTPQKPDEKPKHFIVSNEGRALS
VQLIKNRTQEILVEKCLRKSVTFDFQPD LGTANAHQLALGQFEMHNEAIKSASRILYSQL
AETVQQVYYDLF

SEQ ID NO 54 (CT043)

MSRQNAEENLKNFAKELKLPDVAFDQNNTCILFVDGEFSLHLTYEEHSDRLVYVAPLLD
GLPDNPQRRALALYBKLLGSGMLGGQMAGGGVGVATKEQLILMHCVLDMKYAETNLLK
AFAQLFIETVVKWRTVCSDISAGREPTVDTMPQMPQGGGGGIQPPAGIRA

SEQ ID NO 55 (CT635)

MKNNSAQKIIDSIKQLSTYKIDFEPFSGATLTDDNDLDYQMLIEKTQEKIQELDKRSQEIL
QQTGMTREQMEVFANPNDFNSPEEWRALENIRSSCNEYKKETEELIKEVTNDIGHSSHKS
PTPKTKSSSQKSKKNWIPL

SEQ ID NO 56 (CT859)

MRKIILCSRGFCAGVIRAIQTVEVALEKWRPIYVKHEIVHNRHVVDKLRKGAIFIEDL
QEVPRNSRVIFSAHGVPPSVREEAERGLIAIDATCGLVTKVHSAVKMYAKKGYHILIGK
RKHVEIIGIRGEAPDQITVENIAEVEALPFAQDPLFYVTQTTLSDDAADIVAALKARY
PRIFTLPSSSICYATQNRQGALRNLPQVDFVYVIGDTQSSNSNRLREVAERRGV TARLVN
HPDEVTEILQYSGNIGITAGASTPEDVVQA CLMKLQELIPDL SIEMDLFVEEDTVFQLPK
EL

SEQ ID NO 57 (CT671)

MELNKTSESLFSAKIDHNHPRTEAHEPRDQREV RVFSLEGRSSTRQEKADRMPGRTSSRQ
ESSKGSEEGAVHESTAGVSSKEEEESKGDGFFTGGNPTSGMALVETPMVAVVSEAMVETS
TMTVSQVDLQWVEQLVTSTVESLLVADIDGKQLVEIVLDNSNTVPAAFCGANLTLVQTG
EEISVSFSNFVDQAQLTEATQLVQQNPKQLVSLVESL KARQLNLTEL VVGNAVSLPTIE
KIETPLHMIAATIRHHDQEGDQEGEGRQDQHQQHQHEKKVEEAAHI

SEQ ID NO 58 (CT016)

MKVKINDQFICISPYISARWNQIAFIESCDGGTEGGITLKLHLIDGETVSIPNLGQAIVDEVF
QEHLLEYESTAPQKNKEEEKISSLLGAVQQMAKGCEVQVFSQKGLVSMLLGGAGSINV
LQHSPEHKDHPDLPTDLLERIAQMMRSLSIGPTSILAKPEPHCNCLHCQIGRATVEEEDAG
VSEDLTFRSWDISQSGEKMYTVTDPLNPEEQFNVYLGTPIGCTCGQPYCEHVKA VLYT

SEQ ID NO 59 (CT017)

MLIFALSFGADACLCAADLSKAKVEASVGDRAAFSPFTGEIKGNRVRLRLAPHTDSFIIKE
LSKGDCLAVLGESKDYVVAAPGVRGYVFRFVLDNVIEGEKVNVRLEPSTSAPILARL
SKGTVVKTILGAAQGWIEIALPKQCVFYVAKNFVKNVGALDLYNQKEGQKKLALDLS
SAMDFADELQKKIEDIDLDAIYKKMNLAQSEEFKDVPGLQSLVQKALERVQEAFLAKS
LEKSSVKVPEIRHKVLEBIAVVSFAVEETPVVTKTEEQKVTTVPVPAPAVVTEPAQDLSSV
KGSLLSHYRKKGFVKASPVIEGRESFERSLFAVWLSLQPEEIRHQLTMESFYRDEQKKKR
VLTGELEVYPHIVKNNPGDYLLKNGEDVVAFFVYATSIDLSKWLGKSVVLECVSRPNNHF
AFPAYTVLSVKEGA

SEQ ID NO 60 (CT043)

MSRQNAEENLKNFAKELKLPDVAFDQNNTCILFVDGEFSLHLYEEHSDRLYVYAPLLD
GLPDNPQRRALAYEKLLEGSM LGGMAGGGVGVATKEQLILMHCVLDMKYAETNLLK
AFAQLFIETVVKWRTVCSDISAGREPTVDTMPQMPQGGGGGIQPPPAGIRA

SEQ ID NO 61 (CT548)

MLKMFWLNSLVFFSLLLACGYTVLSPHYVEKKFSLSEGIYVCPIEGDSLGDLVSSLSYEL
EKRGHTRSQGTSSGYVLKVSLEFNETDENIGFAYTPQKPDEKPVKHFIVSNEGRALS
AK
VOLIKNRTQEILVEKCLRKSVTFDFQPD LGTANAHQLALGOFEMHNEAIKSASRILYSQ
AETIVQQVYYDLF